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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional): 434/1/004

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)]

on September 28, 2008

Signature Richard M Goldberg

Typed or printed name Richard M. Goldberg

Application Number	Filed
10/657627	September 8, 2003

First Named Inventor: Joon Keun Lee

Art Unit	Examiner
1791	John M. Hoffmann

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

☑ attorney or agent of record.
Registration number 28215

☐ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 ______

Richard M. Goldberg
Signature

Richard M. Goldberg
Typed or printed name

(201) 343-7775
Telephone number

September 28, 2008
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☑ *Total of 1 forms are submitted.

REASONS FOR PRE-APPEAL BRIEF REQUEST FOR REVIEW

REASON (1): Claims 1, 3-6 and 10 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite.

Specifically, it was stated that the term "violet ray hardening apparatus" is indefinite as to its meaning.

First, this term was used in original claim 9 of the application and was not rejected under 35 U.S.C. §112 in the first Office Action mailed June 28, 2005. Second, the Examiner notes that element 20 of Yoshida et al is the violet ray hardening apparatus (page 4 of the Office Action mailed July 1, 2008), so that the Examiner understands the meaning of this element. Third, it is well settled law that the claims are to be read in light of the specification. In this case, the specification is related to an optical fiber drawing apparatus in which the optical fiber is coated, and the violet ray hardening apparatus is adapted to harden the coated optical fiber. Therefore, it is clear that the coating is hardened by application of the violet ray, i.e., ultraviolet ray. This is clearly not a Tesla coil-type device or use of a laser. Fourth, it is well settled law that the specification and claims are directed to those skilled in the art. Thus, if a person skilled in the art would understand this term in the context of the present invention, this is sufficient. Clearly, one skilled in this art would understand that a coated fiber is hardened by an ultraviolet ray.

REASON (2): Claims 1, 3-6 and 10 were rejected under 35 U.S.C. §103(a) as being obvious from U.S. Patent No. 6,519,404 to Yoshida et al in view of U.S. Statutory Invention Registration No. H1268 to Askins et al, and further in view of Butterworth-Heinemann (Dictionary of Engineering Terms) and Sklater et al (Mechanisms & Mechanical Devices Source Book 2001), and further in view of U.S. Patent No. 5,049,178 to Pereman et al.

The present invention relates to an optical fiber drawing apparatus which minimizes breakage of an optical fiber by adjusting the curvature radius of an optical fiber to an adjusted curvature radius R2. This is accomplished by using at least <u>two</u> moving rollers on the <u>same side</u> of the optical fiber as the fixing roller to release a bending stress and stress concentration, thereby decreasing the possibility of breakage of the optical fiber, as shown in Fig. 3 of the present application.

On the other hand, Yoshida et al relates to a fabrication apparatus for a coated optical fiber which is capable of relieving the elastic torsion remaining in the coated optical fiber, that is, to decrease a polarization mode dispersion which is generated in the case of drawing an optical fiber. Yoshida et al is not at all concerned with breakage. To eliminate residual twists in the fiber, Yoshida et al provides a free zone in which the optical fiber travels straight without touching any other member such as a guide roller (column 3, lines 28-30). This is the length L between take-up roller 26

and wind-up reel 27 in Fig. 1A of Yoshida et al (column 4, lines 10-12). Intermediate rollers 4, 5 (Fig. 2) in the free zone have a smooth roller surface (so that there is no twist imparted) and <u>increase</u> the <u>length</u> of the free zone, thereby providing a greater length over which the optical fiber can untwist. As a result of this arrangement, all of the changes in direction accomplished with the movable rollers are <u>sharp</u> changes in direction, with a <u>sharp angle</u> at <u>each</u> of rollers 3-6. This has the disadvantage of increasing the bending stress and resulting in breakage of the optical fiber, <u>teaching away</u> from the present invention.

In contradistinction, the movable rollers 18, 19 of the present invention <u>increase</u> <u>the radius of the circular path of travel of the optical fiber</u>, that is, eliminate sharp turns in the path of the optical fiber, and thereby reduce cracking of the optical fiber due to <u>bending stresses</u>. This aspect is nowhere disclosed or even remotely suggested in Yoshida et al, and in fact, Yoshida et al does not recognize this problem of <u>bending</u> stresses.

To accomplish this, movable rollers 18, 19 are provided following the fixing roller 17 (immediately after the claimed elements 12-16 in Fig. 3 of the present application). Movable rollers 18, 19 provide a radius of curvature of the optical fiber which is termed in the application the "adjusted curvature radius R2." The optical fiber thereby <u>must</u> necessarily travel around substantially around a circular arc. This is also clearly shown in Fig. 3 and certainly, one skilled in the art would recognize the same. This is because the rollers 17-19 (fixed and movable) are all <u>on the same side</u> of the optical fiber.

Therefore, by providing movable rollers 18 and 19, in addition to fixing roller 17, the radius R2 of the substantially circular arc over which the optical fiber travels, does <u>not</u> provide any <u>sharp</u> angles, thereby reducing any bending stress in the optical fiber, and thereby reducing cracks in the optical fiber.

In Yoshida et al, the only rollers that move in a translation direction, rather than a swinging sense (roller 23), are rollers 4 and 5 in Fig. 2. Guide rollers 4 and 5, however, <u>only move together</u> between the lower position 4', 5' and the upper position 4, 5 in Fig. 2. There is no disclosure or suggestion that they are independently mounted on different brackets for separate movement, for example, in different directions. In fact, Yoshida et al states at column 6, lines 39-41 that "[t]he movement of the movable guide rollers can be implemented, for example, by use of <u>a</u> guide rail and a chain not illustrated" (emphasis added). In other words, there is a <u>single guide rail</u> for both rollers 4, 5 in Yoshida et al, because both rollers 4, 5 are moved in the same direction, at the same time, and for the same distance. Yoshida et al

does not teach separate brackets for independently moving rollers 4, 5, and in fact, teaches away from the same by using a single guide rail for both rollers 4, 5.

Further, although there are two moving rollers 4, 5, they are positioned on opposite sides of the optical fiber from the fixing roller 3, contrary to claim 1 which states that all of the rollers are on the same side of the optical fiber. Because of this structural distinction, Yoshida et al does not provide a gradual change in the adjusted radius of curvature. Rather, because fixing roller 3 is on a different side of the optical fiber from rollers 4, 5, roller 3 provides a sharp turning angle (almost 90 degrees), as do rollers 4, 5, which is contrary to the objective of the present invention to reduce the bending stress.

Because of the arrangement in Fig. 3 of Yoshida et al, the optical fiber must turn through two sharp 90 degree angles, resulting in local bending that can cause cracks or breaks in the optical fiber.

With the present invention, the optical fiber between the fixing roller and the winding apparatus is substantially circular. To achieve this object, the moving rollers 18, 19 must be able to move, respectively, in different directions while guiding the fiber. Each roller 18, 19 is separately mounted on a separate bracket 10 which thereby permits movement of rollers 18, 19 in two different directions, for example, the X and Y directions in Fig. 4A (see page 9, lines 15-18 in which the brackets 10 moved the rollers 18 and 19 in the vertical and horizontal directions). For support for this limitation, see, for example, page 13, lines 4-6 of the present application, which discloses a plurality of brackets 10 which may be provided after the fixing roller in order to reciprocate the moving rollers 18, 19.

Thus, each roller 18, 19 of the present invention is mounted to a separate bracket 10. The specification teaches that each roller 18, 19 can move in a translation direction in a slot or vertical direction guide 21 of the respective bracket 10, and also, each bracket 10 can pivot around pivot joint 22. Thus, each roller 18, 19 is movable in two different X- and Y-directions in translation, separately from each other.

This is also distinguished from roller 23 of Yoshida et al, for example, which only rotates about its own axis as shown in Fig. 4 thereof, and does not move in a translation direction.

With the present invention, the optical fiber between the fixing roller and the winding apparatus is substantially circular. To achieve this object, each of the moving rollers 18, 19 must be able to move, respectively:

a) in different directions while guiding the fiber, and

b) separate from movement of the other movable roller.

As discussed above, Yohsida et al does not disclose or even remotely suggest that the two moving rollers are mounted for separate movement, respectively, in different directions (in the plural), in order to reduce the stress on the fiber. This was admitted by the Examiner in the Office Action. See page 6, last paragraph of the Office Action of July 3, 2007. Further, there would not be any need to do so in Yoshida et al since Yoshida et al is not concerned with providing a circular path of travel for the fiber, but rather, rollers 4, 5 are provided to increase the length of the free zone, and thereby provide a greater length over which the optical fiber can untwist. Thus, there is no suggestion in Yoshida et al, nor any logical reason, to provide separate movement of rollers 4, 5. In fact, separate movement of rollers 4, 5 in different directions may result in more twisting of the fiber, contrary to the teachings of Yoshida et al, such that Yoshida et al would teach away from separate movement of rollers 18, 19. The rollers 4, 5 in Yoshida et al move in only one direction, that is, the vertical direction.

In this regard, claim 1 recites the following limitations which are not disclosed or even remotely suggested in Yoshida et al:

a) at least two movable rollers following the fixing roller and on a same side of said optical fiber as said fixing roller .. in order to release bending stress and stress concentration in the optical fiber and thereby decrease a possibility of breakage of the optical fiber;

b) at least two brackets, each bracket connected to a respective one of said at least two movable rollers to provide movement of the respective one of said at least two movable rollers in at least two different directions relative to the optical fiber, and independent and separate from movement of the other movable roller.

In Askins, L-shaped bracket 62 was noted for mounting two idler rollers 60. However, the idler rollers 60 are both mounted on the same or single bracket 62. See column 5, lines 58-63. Thus, if bracket 62 is moved, both idler rollers 60 move therewith. Therefore, even if Askins et al is combined with Yoshida et al, the claimed present invention would still not be disclosed or suggested in which there are at least two brackets, each bracket connected to a respective one of said at least two movable rollers to provide movement of the respective one of said at least two movable rollers in at least two different directions relative to the optical fiber, and independent and separate from movement of the other movable roller.

Askins et al was relied upon to show it is not an invention to use a bracket and that it would have been obvious to provide a single bracket for each wheel, with no new, unexpected result for additional adjustability or for mere duplication of parts. The Examiner states that it also would have been

obvious to separate the single bracket into two separate brackets, so that a person could separate one from the other, to make replacement of only one wheel more quickly.

However, the case law makes it clear that, for such a modification, there must be some suggestion in the art or some logical reason to do so. Further, the logical reason to do so must be without regard to impermissible hindsight using applicant's own invention disclosure. The Examiner has failed to indicate why one skilled in the art would want to modify the reference, since there appears to be no logical reason, absent the teachings of the present application. Such modification is unwarranted by the references, and constitutes impermissible hindsight. Therefore, Askins et al fails to cure the deficiencies of Yoshida et al.

Butterworth-Heinemann was merely cited for disclosing a CAM that can be used to impart motion on a mating component. Sclater et al was merely cited for disclosing a roller device with a groove in a bracket. However, neither of these references cure the aforementioned deficiencies of Yoshida et al and Askins et al.

Pereman et al was cited as evidence that it is known in the glass manufacturing art to use two brackets instead of one so as to gain independent operation. The only disclosure in Pereman et al of two brackets is in column 9, lines 19-33. However, the two brackets in Pereman et al are provided merely for mounting two arms 60, 66 for holding the lower and upper glass formation surfaces. This has nothing even remotely to do with the present claimed invention, and is not related at all to two brackets that provide for movement of any rollers individually, each in two different directions, in an optical fiber drawing apparatus. It is submitted that one skilled in the art of optical fiber drawing apparatus, would not look to Pereman et al to modify any of the other references. Further, since neither Yoshida et al nor Askins et al disclose separate brackets for independent movement of two rollers in different directions, there is no logical reason to modify Yoshida et al or Askins et al to provide for the same, and no suggestion in the references to provide for the same. It is therefore submitted that Pereman et al fails to cure any of the deficiencies of the aforementioned references, as discussed above.

It is therefore requested that these issues be reviewed and that the rejections based upon the applied references be withdrawn.